



## **Configuring Dialogic® Host Media Processing Software Release 3.0 for Windows® Software Licenses**



## Executive Summary

Designing a telephony and/or multimedia system with a software model allows for flexible system designs to match specific customer requirements. Dialogic® HMP Software is an excellent platform to build your solution to the customers' specific requirements.

Knowing how to configure a Dialogic HMP Software runtime license enables you to choose the exact functionality that benefits your customers using Dialogic® Host Media Processing Software Release 3.0 for Windows®, including the support of the Dialogic® HMP Interface Boards that provide PSTN connectivity for building converged TDM and IP solutions.



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## Configuring Media and Interface Resources

Dialogic® Host Media Processing Software Release 3.0 for Windows® has a flexible software license model for resource provisioning rather than the fixed quantities model that is delivered in hardware boards. Choosing a customized “package” of resources for each license based on the types of resources available and the rules for combining them is a relatively straightforward task.

**Note:** Information in this document is valid for Dialogic HMP Software 3.0. This information is subject to change in future releases of the software.

## Types of Resources

The two general classes of resources available in Dialogic HMP Software 3.0 are Media and Interface.

### Media Resources

Media resources are used for voice and video applications, such as video mail, video portal, voice mail, or Interactive Voice Response (IVR). The five types of Media resources are as follows:

- Voice for functions such as play/record, tones, call progress, etc.
- Continuous Speech Processing (CSP) as an add-on to voice resources and required for speech enablement. See the *Rules for Combining Resources* section for more information.
- Conference
- Fax Termination
- A Multimedia resource for play/record of H.263 video and G.711 audio streams

Access to Media resources is available through the Dialogic® R4 API and Dialogic® MM API.

### IP Network Interface Resources

Interface resources are grouped in two categories:

- IP Media Streaming
- IP Call Control

### IP Media Streaming Resources

IP Media Streaming resources provide the functionality required to stream media between Dialogic HMP Software 3.0 and IP clients using the Real-time Transport Protocol (RTP). Two types of licensable resources are offered with Dialogic HMP Software:

- **Basic RTP G.711** — Acts as a “pipe” to establish an RTP connection between Dialogic HMP Software 3.0 and one remote IP endpoint. Each Voice over IP (VoIP) call into the server running Dialogic HMP Software 3.0 requires one RTP resource. This resource provides RTP streaming using the ITU-T G.711 voice coder.
- **Enhanced RTP** — Enables customers to implement the G.723.1, G.729a, and G.729ab coders for streaming over RTP. A Basic RTP G.711 resource is required for each Enhanced RTP to become operational. See the *Rules for Combining Resources* section for more information.

### IP Call Control Resources

The IP Call Control resources are required to access IP Call Control functionality provided through the H.323 and SIP protocol stacks from RADVISION, which are included with Dialogic HMP Software. Access to IP Call Control resources is available through the Dialogic® Global Call API. Both H.323 and SIP are included in a single resource.

The use of the Global Call API is optional, and is enabled when IP Call Control resources are licensed with Dialogic HMP Software. Alternatively, customers can choose to use their own call control stacks.

IP Call Control resources can be used in two modes: first party call control and third party call control. When used in first-party mode, the IP Call Control resources are directly tied to a corresponding number of RTP connections — each call that is controlled by Dialogic HMP Software 3.0 is routed through the media server. (For example, 60 RTP G.711 connections will require 60 IP Call Control resources.)

Dialogic also supports third party call control, giving developers the ability to set up SIP sessions without RTP media, thus enabling a “back-back” user agent (B2BUA) type application. The RTP media stream goes directly from one SIP endpoint to another. This allows for many more endpoints to be controlled by Dialogic HMP Software 3.0 than media streams passing through the media server itself (see Figure 1). Third-party mode is only available for SIP call control.

When IP Call Control resources are used in first-party mode, they must be used on IP connections. For example, on a system with 60 licensed Basic RTP G.711 resources, 60 IP Call Control resources are required. When licensed in third-party mode, the number of IP

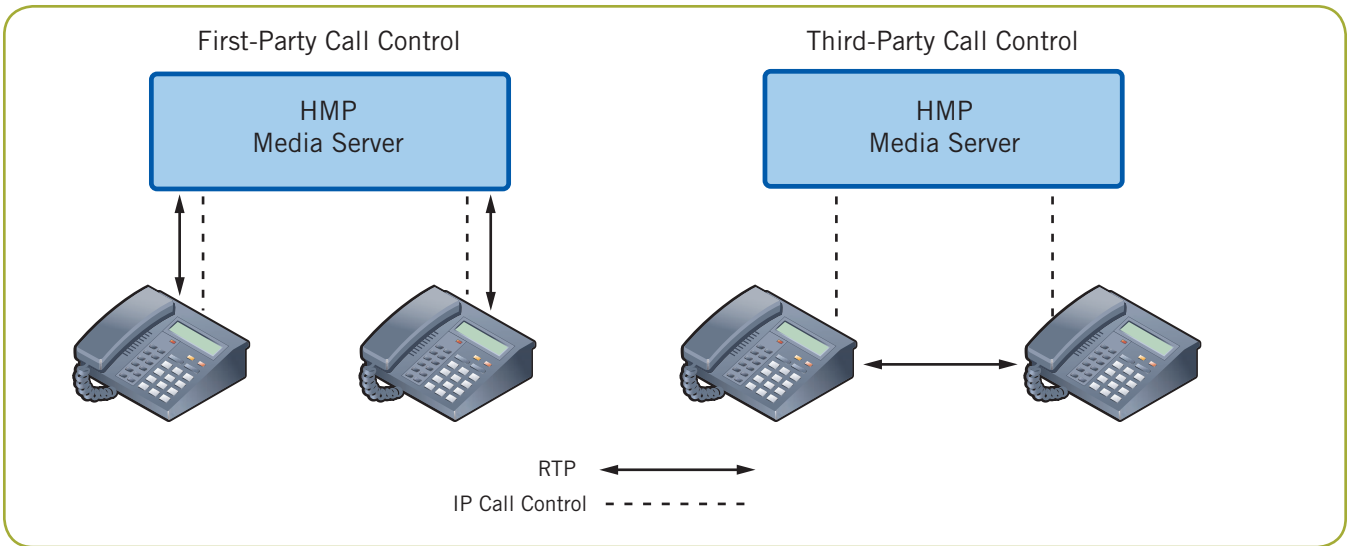


Figure 1. IP Call Control Models

Call Control resources must be equal to (and can be greater than) the number of RTP sessions.

**Note:** A server must operate either in first- or third-party mode when using IP Call Control.

**Summary of Available Resources**

In summary, eight types of resources are available with Dialogic HMP Software 3.0:

**Media**

- Voice
- Speech
- Conference
- Fax Termination
- Multimedia

**IP Network Interface**

- IP Media Streaming
  - Basic RTP – G.711
  - Enhanced RTP
- IP Call Control

**Rules for Combining Resources**

Some resources cannot be used alone, and must be combined with other resources. The following table lists the resources and identifies if a resource is required for using it.

Resource	Requires the Resource(s)
Speech	Voice
Enhanced RTP	Basic RTP G.711
Multimedia	Basic RTP G.711
Voice, conferencing, or fax used in an IP-only environment and used with an external endpoint (without Dialogic® HMP Interface Boards)	Basic RTP G.711

**Note:** Voice resources and Conferencing resources used to record a conference would not require a Basic RTP G.711 resource.

## Combining Resources to Create Basic IP Media Sessions

Dialogic HMP Software 3.0 resources are combined to enable various sessions in an application, just as they would if telephony boards were in use. The following are examples of sessions (examples are for IP-based media servers):

- Multimedia with IVR
- Voice mail
- Speech-enabled IVR
- T.38 fax

### Multimedia with IVR Session Example

A single multimedia (audio/video) session using H.263 as the video coder and G.711 as the audio coder along with SIP-based call control using the Global Call API requires:

- A Multimedia resource for play/record of H.263 video and G.711 audio streams
- A Voice resource to provide media resources for DTMF detection
- A Basic RTP G.711 resource
- An IP Call Control resource for SIP call control using the Global Call API

### Voice Mail Session Example

A single voice mail session using G.729 and the H.323 call control stack requires:

- A Voice resource to provide media resources for play/record and DTMF detection
- A Basic RTP G.711 resource
- An Enhanced RTP resource for G.729 support
- An IP Call Control resource for Global Call API support of H.323 and SIP

### Speech-Enabled IVR Session Example

A single speech-enabled IVR session using G.711 and the SIP call control stack requires:

- A Voice resource to provide media resources for play/record
- A Speech resource for speech enablement via CSP
- A Basic RTP G.711 resource
- An IP Call Control resource for Global Call API support

### T.38 Fax Session Example

A single fax session using the Global Call API requires:

- A Fax resource
- A Basic RTP G.711 resource
- An IP Call Control resource for Global Call API support

**Note:** Fax sessions never require Enhanced RTP resources.

## Combining Resources to Create Sessions for a Call Center

For a call center, two kinds of sessions are basic: RTP sessions in which a customer calls an agent or an agent calls another agent, and IVR or auto-attendant sessions. Global Call API is used in the following examples.

### RTP Session Using G.729 Example

A single voice call session using G.729 requires:

- A Voice resource to provide a Media resource for the call
- A Basic RTP G.711 resource
- An Enhanced RTP resource for G.729 support
- An IP Call Control resource for Global Call API support

### RTP Session Using G.711 Example

A single voice call session using G.711 requires:

- A Voice resource to provide Media resources for the call
- A Basic RTP G.711 resource
- An IP Call Control resource for Global Call API support

### IVR/Auto-Attendant Session Using G.711 Example

A single IVR/auto-attendant session using G.711 requires:

- A Voice resource to provide Media resources for the call to the IVR/auto attendant
- A Basic RTP G.711 resource
- An IP Call Control resource for Global Call API support

Since the IVR/auto attendant is not speech-enabled, only a Voice resource is required.

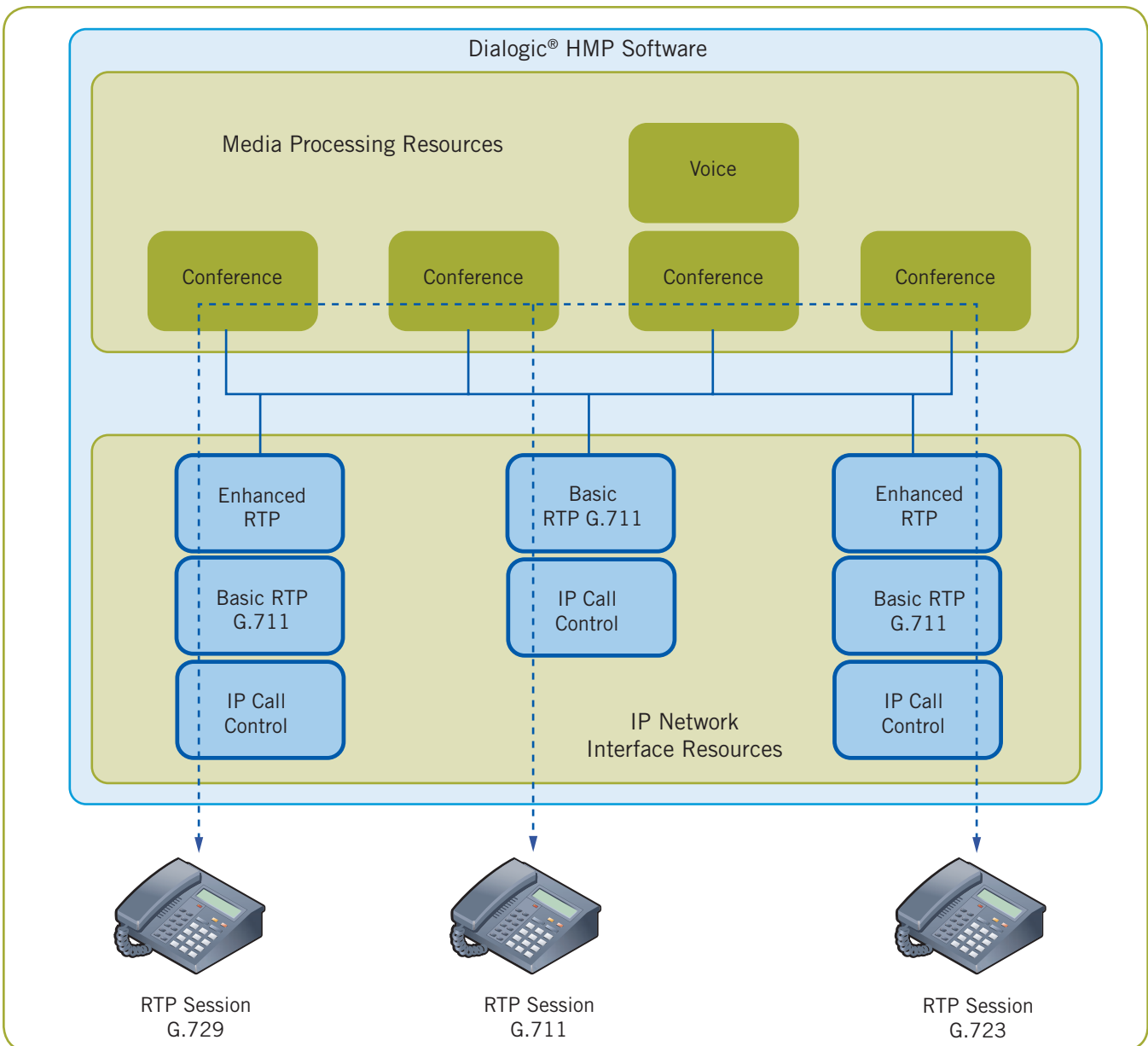


Figure 2. Resources for a Conference Server

### Combining Resources to Create Sessions for a Conference Server

A conference server usually requires one type of session, but provision for different coders may be needed. In addition, a conference is often recorded. The ability to record a conference requires a single Voice resource and one additional Conference resource.

The following is a list of resources needed for a three-session conference, assuming three endpoints: one using G.711, one using G.723, and one using G.729. The conference also must be recorded.

- A Voice resource to provide a Media resource for recording the conference

- Four Conferencing resources, one for each of the three conference participants, plus one to connect the Voice resource to the conference so that it can be recorded
- Three Basic RTP G.711 resources, one for each conferee
- Two Enhanced RTP resources for G.723 and G.729 support
- Three IP Call Control resources for Global Call API support

Figure 2 shows how these resources are grouped.

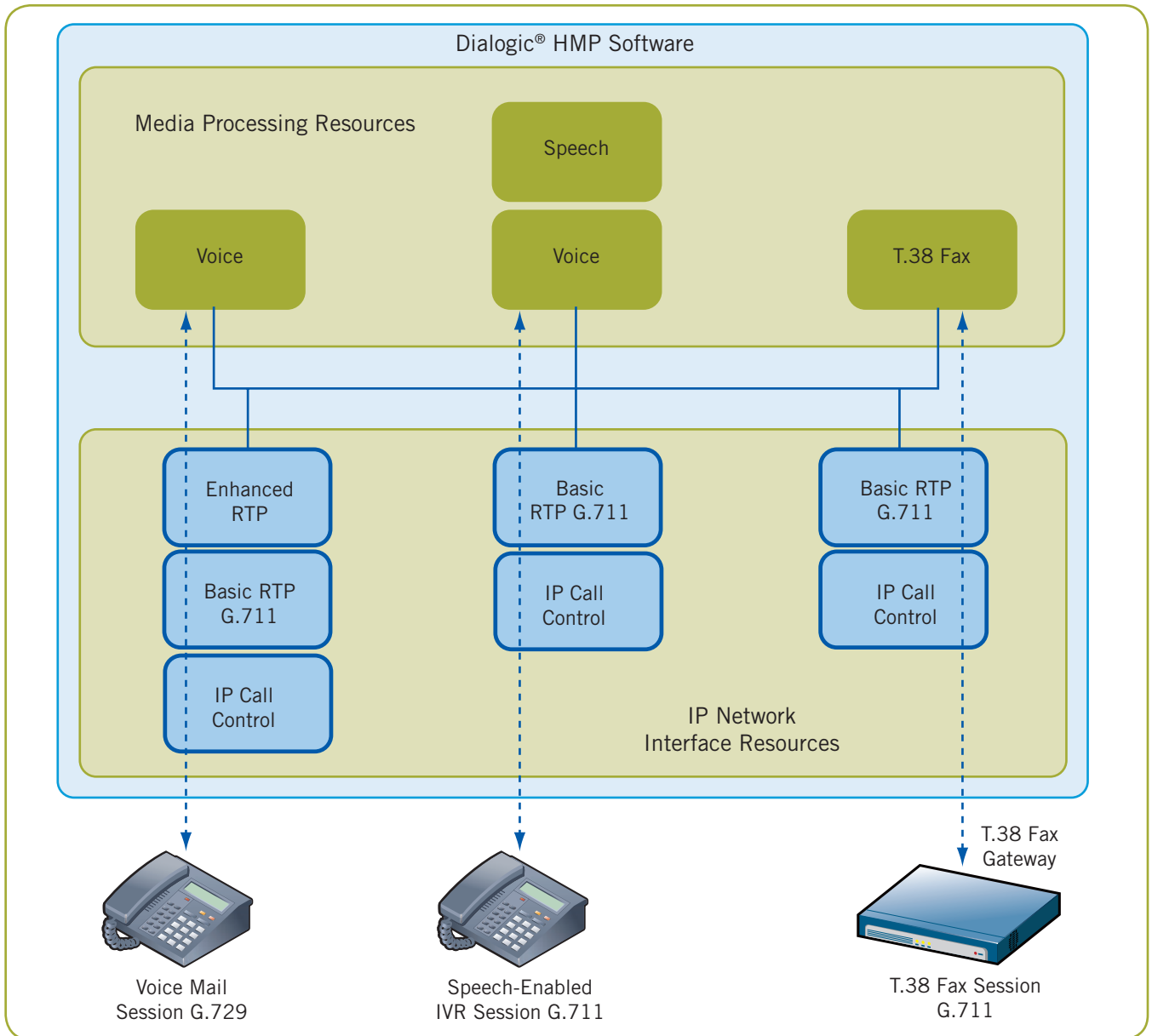


Figure 3. Resources for a Unified Messaging Server

The number of Enhanced RTP resources governs the number of RTP sessions that will allow the use of low-bit-rate coders and lower bandwidth usage. The number of Enhanced RTP resources must be equal to or less than the number of Basic RTP G.711 resources. The number of IP Call Control resources must equal the number of Basic RTP G.711 resources if Global Call API support is required.

### Provisioning Examples

The common types of solutions in which Dialogic HMP Software 3.0 is used include unified messaging servers and IP call centers. Hypothetical examples for provisioning such solutions are provided.



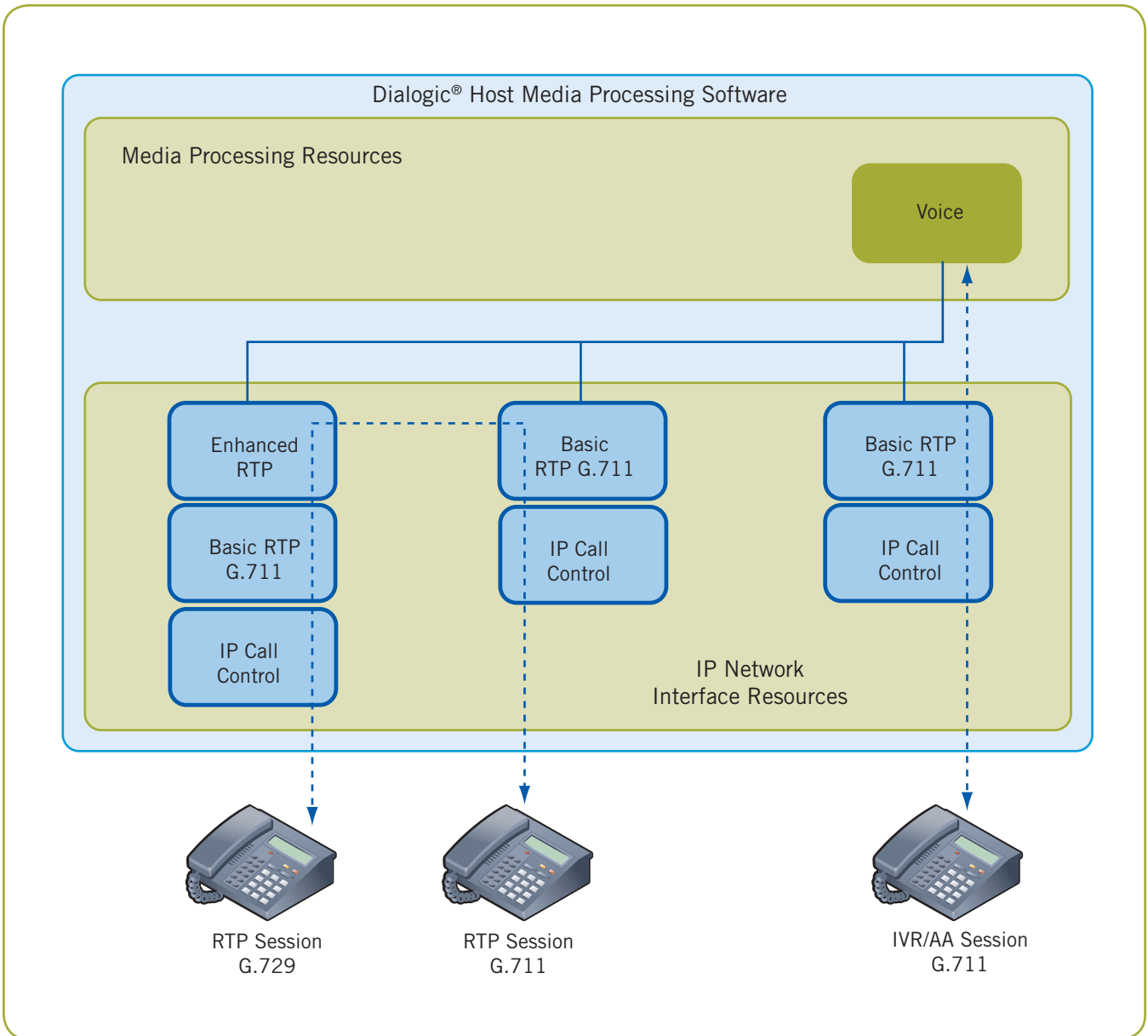


Figure 4. Resources for an IP Call Center

### Unified Messaging Server Example

Table 1 provides the requirements for a unified messaging server and the required Dialogic HMP Software 3.0 resources.

Scenario Requirements	Resource Required
A unified messaging server with 120 sessions, 60 of which use low bit rate coders	120 Basic RTP G.711 resources with 60 Enhanced RTP resources
Use of the Dialogic Global Call API	120 IP Call Control resources
A maximum of 30 users of voice applications, such as IVR and voice mail, 10 of which are speech enabled	30 Voice resources and 10 Speech resources
30 conference participants	30 Conference resources
5 fax sessions	5 Fax resources

Table 1. Unified Messaging Server Requirements

Figure 3 shows how these resources are grouped.

## IP Call Center Example

Table 2 provides the requirements for an IP call center and the required Dialogic HMP Software 3.0 resources.

Scenario Requirements	Resource Required
An IP call center with 40 agents and 80 trunk lines for incoming calls, requiring 120 sessions, 60 of which will allow the use of low-bit-rate coders	120 Basic RTP G.711 resources with 60 Enhanced RTP resources
Use of the Dialogic Global Call API	120 IP Call Control resources
A maximum of 80 voice ports to enable playing of prompts or recording messages, with 30 possible speech-enabled sessions	80 Voice resources and 30 Speech resources
30 conferencing sessions for coaching and monitoring	30 Conference resources
A maximum of 20 conference ports for agent coaching and monitoring	20 Conference resources

Table 2. IP Call Center Requirements

Figure 4 shows how these resources are grouped.

## Hybrid Call Center Example

Table 3 provides the requirements for a hybrid call center and the required Dialogic HMP Software 3.0 resources.

Scenario Requirements	Resource Required
A hybrid PBX supporting two E-1 lines for TDM traffic and 30 IP stations	30 Basic RTP G.711 resources
Requires a dual-span digital network interface board to support the TDM traffic	30 IP Call Control resources
Use of the Dialogic Global Call API	
A maximum of 60 voice ports to enable playing of prompts or recording messages	60 Voice resources
5 fax ports available for V.17/T.38 Fax Termination or Gateway functionality	5 Fax resources
A maximum of 20 conference ports for agent coaching and monitoring	20 Conference resources

Table 3. Hybrid Call Center Requirements

Figure 5 shows how these resources are grouped.

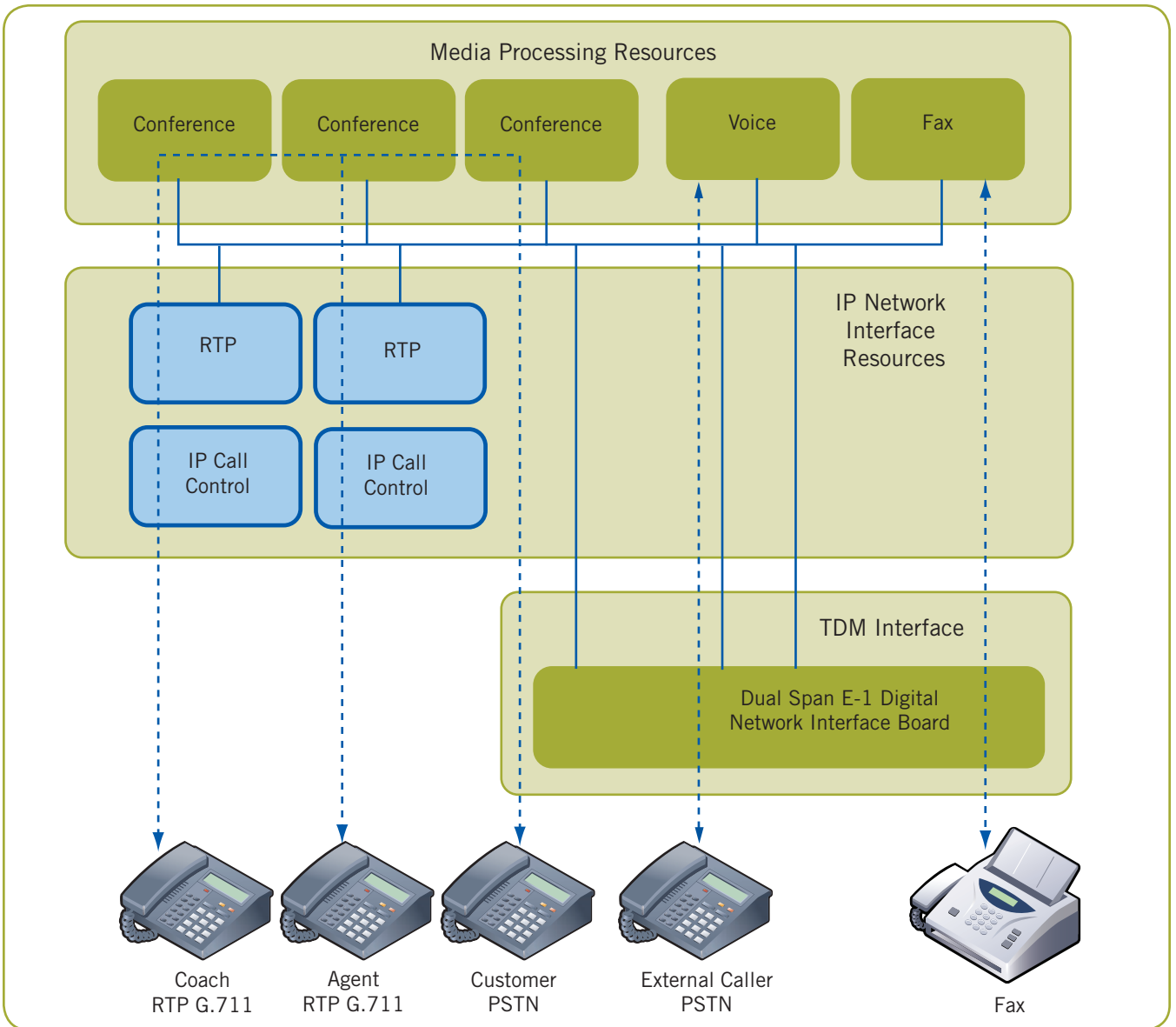


Figure 5. Resources for Hybrid Call Center

## Summary of Dialogic HMP Software 3.0 Resources

Table 4 provides a summary of the information required for configuring licenses for Dialogic HMP Software 3.0. Dialogic HMP Software 3.0 has different licensing limitations based on which release is in use; these limitations are also detailed in Table 4.

Resource Type	Dialogic HMP Software 3.0 Limits	Notes
Basic RTP G.711	750 maximum	Sum of the number of sessions allowed or lines plus trunks allowed; G.711 is the default coder used
Enhanced RTP	200 maximum; less than or equal to Basic RTP G.711	Allows use of low bit rate coder; must be equal to or less than the number of Basic RTP G.711 resources
IP Call Control	Equal to number of Basic RTP G.711 for first party call control Equal to, or greater than RTP for third party call control, 5000 maximum	Requires one resource for each Basic RTP G.711 resource if Dialogic Global Call API is required Delivered IP Call Control stack (H.323 and SIP) must be used
Voice	750 maximum	Equals the number of play/record sessions
Speech	240 maximum	Equals the number of Voice sessions that can be speech-enabled Must be equal to or less than the number of Voice resources
Conference	580 maximum	To record a conference, include a Voice resource and an additional Conference resource
Fax	120 maximum	T.38 fax sessions for all releases V.17 fax sessions for HMP Software 2.0 and 3.0 only
Multimedia	120 maximum	H.263

Table 4. Summary of Dialogic HMP Software 3.0

## For More Information

General information, proof points, and case studies about the products described in this application note — <http://www.dialogic.com/manuals/hmp30win/default.htm>

To learn more about Dialogic® products, go to [www.dialogic.com](http://www.dialogic.com).

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